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The geographic variation of *Pyroneura liburnia* (HEWITSON [1868]) (Lepidoptera: Hesperiidae)

by

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Abstract: The geographic variation of the endemic Philippine hesperiid *Pyroneura liburnia* (HEWITSON [1868]) is described and figures of representatives of all subspecies are given. Three new subspecies are described: *dora* (Mindoro), *rosa* (Negros) and *wita* (Tawitawi group).

Die geographische Variation von *Pyroneura liburnia* (HEWITSON [1868]) (Lepidoptera: Hesperiidae)

Zusammenfassung: Die geographische Variation der auf die Philippinen beschränkten Hesperiiden-Art *Pyroneura liburnia* (HEWITSON [1868]) wird beschrieben und Vertreter aller Unterarten werden abgebildet. Drei neue Unterarten werden beschrieben: *dora* (Mindora), *rosa* (Negros) und *wita* (Tawitawi-Archipel).

Introduction

Pyroneura liburnia (HEWITSON [1868]) is one of the 33 endemic species of Philippine Hesperiidae (DE JONG & TREADAWAY, in press) and certainly the most variable one. EVANS (1941, 1949) distinguished two subspecies and SCHRÖDER & TREADAWAY (1987) added a third. In this paper we add three more. The variation affects size, extension of hyaline spots and of yellow scaling on upper and underside. These characters vary independently resulting in strikingly different forms. To appreciate the range of variation all subspecies are described below.

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The known distribution across the Philippines is such that more localities can be expected to turn up. On the other hand, *P. liburnia* is a species of lowland forest and coastal coppice. The habitat, and thus the survival of this beautiful insect, is much endangered and its present distribution is probably only a relic.

If not explicitly stated the material mentioned below is in the collections of the National Museum of Natural History, Leiden, and of C. G. TREADAWAY, Senckenberg-Museum, Frankfurt am Main.

Pyroneura liburnia liburnia (HEWITSON [1868]) Figs. 1, 7

Hesperia liburnia HEWITSON [1868]: 33.
Type-locality: Philippines.
Type depository: The Natural History Museum [formerly the British Museum (Natural History)], London.

Material examined. 17 ♂♂ 11 ♀♀ Luzon; 6 ♂♂ 3 ♀♀ Marinduque.

Length of forewing: male 16–19.7 mm (n = 23), female 16.5–20 mm (n = 14).

Male. Upperside forewing: basal yellow area in space 1bc just reaching spot 2; spot 2 hardly or not extending beyond a line from origin of vein 3 to tornus, not extending to under spot 3 and proximally not extending to origin of vein 2; spot 3 not filling base of space 3; spots 3 and 4 contiguous; upper and lower cell spot of equal width but upper spot shorter; the two spots separated by less than their width; no yellow scaling in cell. Underside forewing: Yellow subcostal streak in spaces 9 and 10 and arrow-like submarginal spots at the ends of veins 2 to 7. Upperside hindwing: central yellow area not extending into space 1c, relatively narrow, along vein 3 width less to slightly more than distance from termen; yellow hairs in space 1b sparse. Underside hindwing: central band rather pale yellow; yellow area in space 1b only slightly larger than in space 1c, submarginal spots well developed, in space 7 extending basad, but not quite reaching basal yellow spot in cell.

Female. Similar to male, but basal yellow area in space 1bc only in lower half, against vein 1; underside hindwing, central band pale yellow (in Marinduque this band broader and paler than in Luzon).

Distribution (Fig. 13). Luzon, Polillo, Marinduque.

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Pyroneura liburnia ***dora*** **subspecies nova** Figs. 2, 8

Holotype ♂ Mindoro, Mt. Halcon, 6. iv. 1990, leg. MOHOGAN.
Paratypes: 1 ♂ Mindoro or., Mt. Kantiwang, 5. v. 1992; 1 ♀ as holotype, 9. iv. 1990.

Holotype and ♀ paratype in coll. C. G. TREADAWAY; ♂ paratype in National Museum of Natural History, Leiden.

Length of forewing male 17–19.3 mm (n = 2), female 19.4 mm (n = 1).

Male. Upperside forewing: basal yellow area in space 1bc extensive, overlapping about half of spot 2 and extending slightly over basal part of spot 2 and into cell; spot 2 extending well beyond line from origin of vein 3 to tornus and under spot 3, and almost completely filling base of space 2; spot 3 filling base of space 3; spots 3 and 4 contiguous; upper and lower cell spot equal, separated by more than their width. Underside forewing: subcostal and submarginal spots only vaguely visible. Upperside hindwing: central yellow area extending into space 1c, wide, along vein 3 width almost twice distance from termen; dense yellow hairs in space 1b. Underside hindwing: yellow area in space 1b twice as large as in space 1c, submarginal spots rather weakly developed, yellow stripe in space 7 very weak.

Female. Similar to female of ssp. *liburnia,* a bit larger.

Distribution (Fig. 13). Mindoro.

Pyroneura liburnia divinae SCHRÖDER & TREADAWAY 1987 Figs. 3, 9

Pyroneura liburnia divinae SCHRÖDER & TREADAWAY 1987: 285.
Type locality: Sibuyan.
Type depository: coll. C. G. TREADAWAY.

Material examined. 8 ♂♂ 3 ♀♀ (including holotype and paratypes), Sibuyan; 1 ♂ Romblon; 1 ♂ 2 ♀♀ Panay.

Length of forewing male 18–19.2 mm (n = 10), female 18–21 mm (n = 5).

Male. Upperside forewing: basal yellow area in space 1bc overlapping basal third of spot 2, not extending across vein 2; spot 2 just extending beyond line from origin of vein 3 to tornus, not completely filling base

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of space 2; spot 3 may or may not fill base of space 3; spots 3 and 4 contiguous; upper and lower cell spot subequal, separated by less than their width. Underside forewing: streak in spaces 9 and 10 almost touching yellow streak coming from base; arrowlike submarginal spots at end of veins 2 to 7. Upperside hindwing: central yellow area not extending into space 1c, in upper part more pointed (to termen) than in other subspecies, narrow, along vein 3 width less than or subequal to distance from termen; almost no yellow hairs in space 1b. Underside hindwing: yellow area in space 1b narrow and a bit longer than in space 1c, submarginal spots strongly developed, that in space 7 reaching to basal yellow spot in cell.

Female. Similar to male; upperside hindwing yellow in space 1b more obvious.

Distribution (Fig. 13). Sibuyan; Romblon; Panay.

Pyroneura liburnia rosa **subspecies nova** Figs. 4, 10

Holotype ♂ Negros, Amlan, 500–600 m, forest near Hydroelectric Powerplant, 25.–28. viii. 1980, leg. R. DE JONG.
Paratypes: 1 ♂ Negros, Amlan, 25. ix. 1976, leg. C. G. TREADAWAY; 6 ♂♂ Negros, Mt. Canlaon, 19. ix. 1984, leg. GARZON; 8. vii. 1990 (2 ♂♂), 28. iii. 1991, 10. v. 1991, 8. ix. 1991, leg. ARIMAS; 1. ix. 1992, 3. ix. 1992.

Holotype and 3 ♂♂ 1 ♀ paratypes in National Museum of Natural History, Leiden; 5 ♂♂ 2 ♀♀ paratypes in coll. C. G. TREADAWAY.

Length of forewing male 19–20 mm (n = 9), female 19.8–21 (n = 3).

Male. Upperside forewing: basal yellow area in space 1bc overlapping at least half of spot 2, extending beyond vein 2 and into cell, covering base of space 2 and basal part of spot 2; spot 2 extending well beyond line from origin of vein 3 to tornus; spot 3 just not filling base of space 3; upper and lower cell spot subequal, separated by more than their own width. Underside forewing: subcostal yellow streak in spaces 9 to 11; yellow submarginal line from vein 2 to vein 8 with arrowlike extensions along the veins. Upperside hindwing: central yellow area extending into space 1c, broad, along vein 3 much broader than distance from termen; dense yellow hairs in space 1b. Underside hindwing: yellow area in space 1b longer and wider than in space 1c;

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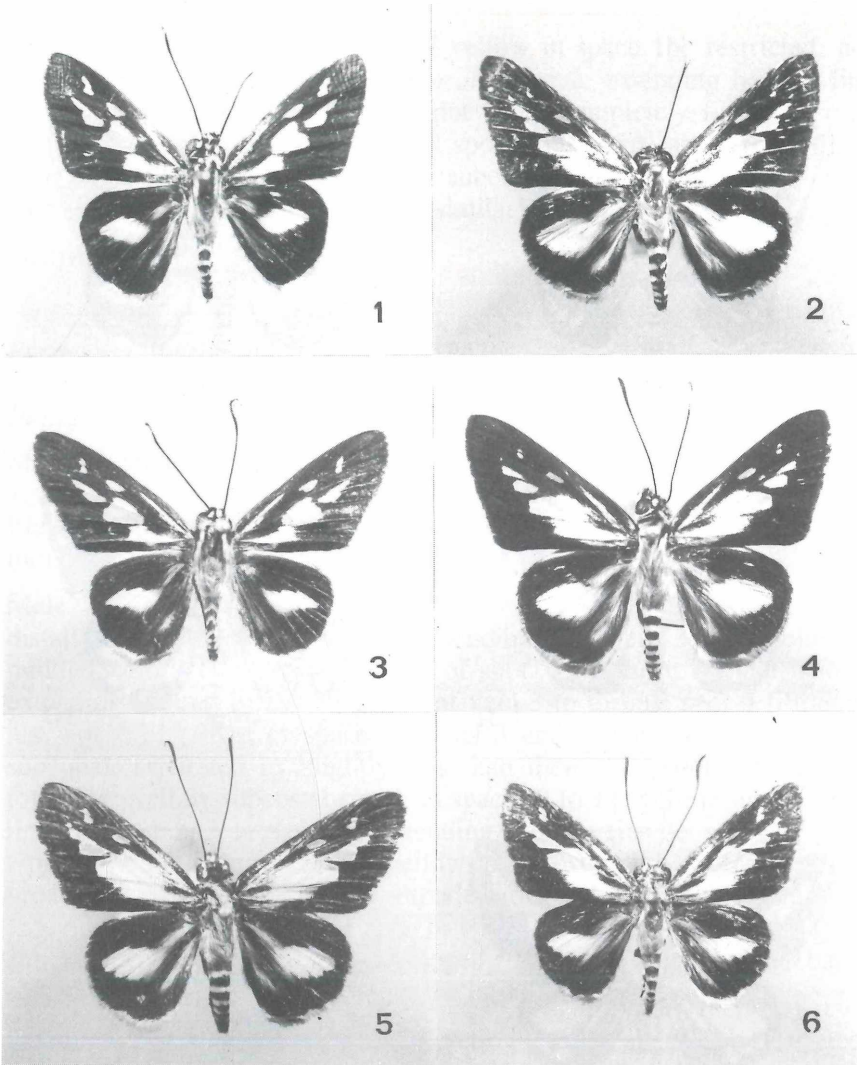

Figs. 1–6: Upperside of *Pyroneura liburnia.* **Fig. 1:** ssp. *liburnia,* ♂ Luzon, Los Baños, Mt. Makiling. **Fig. 2:** ssp. *dora,* holotype, ♂ Mindoro, Mt. Halcon, 800 m, 6. iv. 1990. **Fig. 3:** ssp. *divinae,* holotype, ♂ Sibuyan, Mt. Guintinguintin, 300 m, 22. vi. 1986. **Fig. 4:** ssp. *rosa,* paratype, ♂ Negros, Mt. Canlaon, 8. vii. 1990. **Fig. 5:** ssp. *minda,* ♂ C. Leyte, Mahaplag, Hilusig, Mt. Balocaue. **Fig. 6:** ssp. *wita,* holotype, ♂ Sanga Sanga Is., Boloboc, 20 m, 22. iii. 1991.

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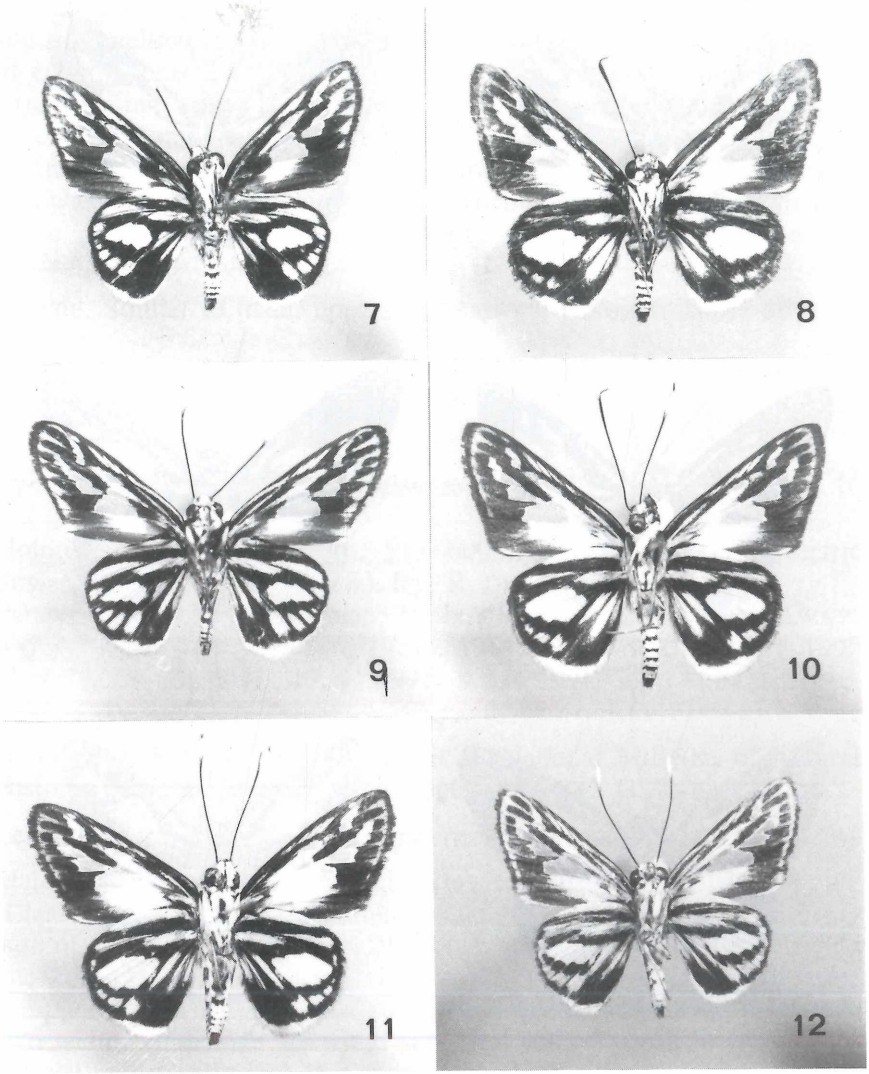

Figs. 7–12: Undersides of specimens of Figs. 1–6.

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submarginal spots well-developed, in space 7 extending to basal yellow spot in cell (not so in one male).

Female. Upperside forewing: basal yellow in space 1bc restricted, not reaching vein 2; spot 2 filling base of space 2, extending beyond line from origin of vein 3 to tornus; spot 3 not completely filling base of space 3; spots 3 and 4 separate; cell spots wide apart, about three times their width. Underside forewing: subcostal and submarginal yellow spots almost invisible. For the rest similar to male.

Distribution (Fig. 13). Negros.

Pyroneura liburnia minda (EVANS 1941) Figs. 5, 11

Plastingia liburnia minda EVANS 1941: 71.

Material examined. 11 ♂♂ 5 ♀♀ Homonhon; 3 ♂♂ Leyte.

Length of forewing male 15.5–20.5 mm (n = 14), female 17.5–19.5 mm (n = 5).

Male. Upperside forewing: basal yellow area in space 1bc extending distally almost to end of spot 2, extending over vein 2 and cubitus to middle of cell, covering almost all of spot 2 making it opaque; spot 2 extending beyond line from origin of vein 3 to tornus; spot 3 filling or just not filling base of space 3; spots 3 and 4 contiguous; cell spots subequal, separated by slightly less than their own width. Underside forewing: yellow subcostal streak in spaces 9 to 11; yellow submarginal line from vein 2 to vein 8, extending along veins to spots 3 to 7. Upperside hindwing: central yellow area extending into space 1c, broad, along vein 3 much broader than distance from termen. Underside hindwing: yellow area in space 1b not larger than in space 1c; submarginal spots well-developed, in space 7 extending basad across base of space 6 and joining the basal yellow spot in cell.

Female. Upperside forewing: basal yellow area in space 1bc restricted, hardly reaching vein 2; spots 3 and 4 just separate; cell spots widely apart, by three to four times their width. Upperside hindwing: central yellow area a bit narrower than in male. For the rest similar to male.

Distribution (Fig. 13). Mindanao, Homonhon, Leyte.

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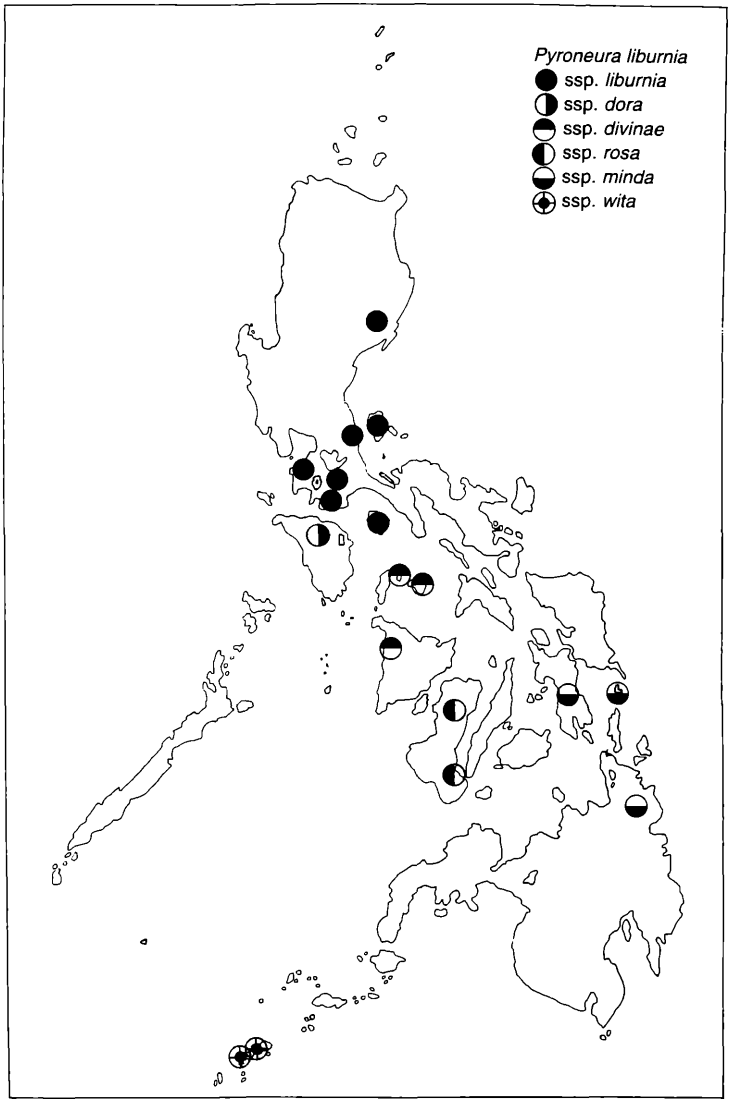

Fig. 13: Distribution of subspecies of *Pyroneura liburnia*.

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Pyroneura liburnia ***wita*** **subspecies nova** Figs. 6, 12

Holotype ♂ Tawitawi group, Sanga Sanga Is., Boloboc, 20 m, 22. iii. 1991, leg. C. G. TREADAWAY.
Paratypes, 2 ♂♂ idem, 21. iii. 1991, 23. iii. 1991, leg. C. G. TREADAWAY; 1 ♀ Tawitawi Is., Batu Batu, 15. iii. 1991, leg. C. G. TREADAWAY.

Holotype and ♀ paratype in coll. C. G. TREADAWAY, 2 ♂♂ paratypes in National Museum of Natural History, Leiden.

Length of forewing male 16.3–17.4 mm (n = 3), female 18 mm (n = 1).

Male. Upperside forewing: basal yellow area in space 1bc overlapping greater part of spot 2, not extending beyond vein 2; spot 2 filling base of space 2, extending beyond line from origin of vein 3 to tornus; spot 3 filling base of space 3; spots 3 and 4 contiguous; upper cell spot very narrow, shorter than lower cell spot, separated by slightly more than width of lower cell spot. Underside forewing: subcostal yellow streak continuous from base to space 9; submarginal yellow line from tornus to apex, veins yellow between this line and spots. Upperside hindwing: central yellow area extending into space 1c, relatively narrow, along vein 3 about as wide as distance from termen; yellow hairs in space 1b inconspicuous. Underside hindwing: yellow stripe in space 1b shorter than in space 1c where it reaches the submarginal spot; submarginal spots well-developed, forming an almost continuous band, in space 7 extending basad and through base of space 6 joined to the basal yellow spot in cell.

Female. Upperside forewing: basal yellow area in space 1bc not entirely reaching vein 2; spot 2 not filling base of space 2; spots 3 and 4 separate. Underside hindwing: central band very pale yellow, almost white. For the rest similar to male.

Distribution (Fig. 13). Tawitawi group (Sulu Archipelago).

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